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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/619,669	07/15/2003	Partab Jeswani	DP-307786	7172
7590	02/08/2005		EXAMINER	
DELPHI TECHNOLOGIES, INC. Legal Staff P.O. Box 5052 Mail Code: 480-410-202 Troy, MI 48007-5052			EDGAR, RICHARD A	
		ART UNIT	PAPER NUMBER	
		3745		
		DATE MAILED: 02/08/2005		

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/619,669	JESWANI ET AL.
	Examiner Richard Edgar	Art Unit 3745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 9 December 2004 under 37 CFR 1.111.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-20 is/are pending in the application.
 - 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-20 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 09 December 2004 is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ . |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| | 6) <input checked="" type="checkbox"/> Other: <u>Translation (JP-57-099298)</u> . |

Response to Arguments

Applicant's arguments and corresponding amendments, see pages 8 and 9, filed 09 December 2004, with respect to the drawing objections, specification objections, claim objections and claim indefiniteness, have been fully considered and are persuasive. The objections and indefinite rejections of the drawings, specification and claims have been withdrawn.

Applicant's arguments filed 09 December 2004, with respect to the 35 U.S.C. § 102 (b) and 35 U.S.C. § 103 (a) rejections have been fully considered but they are not persuasive.

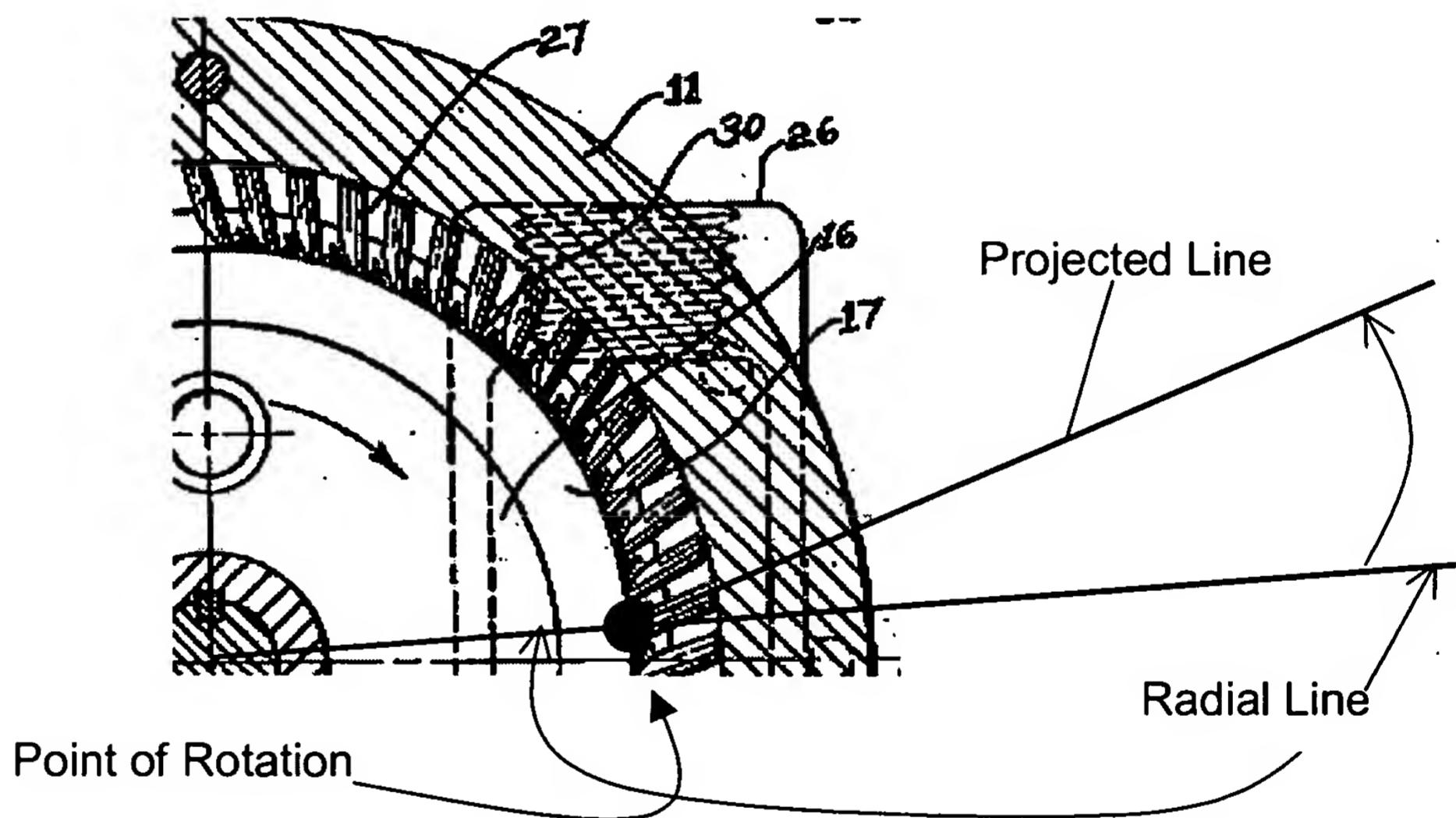
Applicant has amended each of the independent claims to require "each of said blades having a point of rotation at a hub diameter through which a radial axis extends and each of said blades having a trailing edge being slanted by a predetermined angle by a line projected from said trailing edge through said point of rotation."

Applicant has generally argued that the new limitation is not disclosed by either of the references applied in the previous Office action (U.S. Patent No. 2,283,844 issued to Brady, Jr. and U.S. Patent No. 5,415,521 issued to Hufnagel et al.).

The examiner admits that the applied references do not expressly recite a "point of rotation" from which the blades are slanted, however, the examiner does not agree with Applicant's conclusion that the claims are not anticipated since the limitation is not expressly recited. Anticipation, as explained in MPEP § 2131, in addition to express teachings, also applies if elements or limitations are inherently described in a single

prior art reference. Verdegaal Bros. v. Union Oil Co. of California, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

The Brady, Jr. reference (U.S. Patent No. 2,283,844) inherently requires, through the enabling figures, a point of rotation at the hub diameter through which a radial axis extends and each of the blades having a trailing edge being slanted by an angle by a line projecting from the trailing edge through said point. The annotated drawing below illustrates the rotation point and related lines.



The examiner submits that if the Brady, Jr. blades are to be slanted as shown, there is inherently a point of rotation of the hub outer diameter, otherwise, the blades would not be slanted since they would lie in the radial direction.

Applicant's other arguments are deemed moot since they are based on the allegation that U.S. Patent No. 2,283,844 does not anticipate the newly added limitation, which the examiner has deemed incorrect.

Drawings

The drawings are objected to because:

The reference numeral “62” in Fig. 4 should be deleted since the view is taken from a section line shown in Fig. 3, which does not include the hub outer diameter, where the point “62” is located.

In Fig. 5, the solid reference line aligned with the radial line 58 should not be the same line type as that showing the blade boundary lines (i.e. the solid lines defining the blade). The Figure is misleading since it appears to show a vane leading edge aligned with a radial line and the trailing edge positioned at an angle θ with respect to the vane leading edge line.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled “Replacement Sheet” in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will

be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 6, 7, and as far as claims 3 and 4 are definite, are rejected under 35 U.S.C. 102(b) as being anticipated by United States Patent No. 2,283,844 (Brady hereinafter).

Brady discloses an impeller comprising: a hub portion 16 adapted for attachment to a rotatable shaft 15;

a plurality of blades 27 extending outwardly from said hub portion and disposed circumferentially thereabout;

a peripheral ring portion 34 extending outwardly from said blades to shroud said blades (see col. 2, lines 61-63); and

the blades being non-radial relative to a center axis of said hub portion (see column 2, lines 49-50).

The blades have an inner diameter and an outer diameter and extend outwardly at an angle at least greater or less than zero therebetween (see Fig. 2).

The blades are back slanted from the inner diameter to the outer diameter (see col. 2, lines 50-53).

The blades are angled from the inner diameter to the outer diameter at an approximately 20° angle (see col. 3, lines 54-55).

Each blade has a trailing edge that does not extend through the center axis of the impeller (see Fig. 2).

The blades are generally "v"-shaped (see Fig. 1 and col. 3, line 17).

The blades 27 inherently have a point of rotation at the hub diameter through which a radial axis extends and each of the blades having a trailing edge being slanted by an angle by a line projected from the trailing edge through the point of rotation. The above-stated inherency is supported by the slanted blades shown in Fig. 2, since the blades are not radial.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 5, as far as it is definite, is rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent No. 2,283,844 (Brady hereinafter) in view of United States Patent No. 5,642,981 (Kato et al. hereinafter).

Brady discloses an impeller comprising: a hub portion 16 adapted for attachment to a rotatable shaft 15;

a plurality of blades 27 extending outwardly from said hub portion and disposed circumferentially thereabout;

a peripheral ring portion 34 extending outwardly from said blades to shroud said blades (see col. 2, lines 61-63); and

the blades being non-radial relative to a center axis of said hub portion (see column 2, lines 49-50).

The blades are angled from the inner diameter to the outer diameter at an approximately 20° angle (see col. 3, lines 54-55).

The blades 27 inherently have a point of rotation at the hub diameter through which a radial axis extends and each of the blades having a trailing edge being slanted by an angle by a line projected from the trailing edge through the point of rotation. The above-stated inherency is supported by the slanted blades shown in Fig. 2, since the blades are not radial.

Brady does not expressly disclose a 5° angle.

Kato et al. disclose a fuel pump impeller having non-radial vanes in Figure 13B wherein the vanes are inclined in the opposite direction from rotation of the impeller by an angle theta (θ), wherein θ is approximately 5° (col. 10, lines 20-27) for the purpose of enhancing a fuel pump's efficiency.

Since Brady teaches a liquid regenerative pump having inclined vanes and suggests that the vanes should be arranged at "a suitable angle" (col. 2, lines 49-50),

and Kato et al. show that a 5° angle is suitable for a fuel pump impeller, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the incline angle of the Brady impeller to be 5°, as taught by Kato et al. for the purpose of enhancing the pump's efficiency when used to pump fuel.

Claims 8, 10, 15, 16, 17, 18, 19, 20 and claims 9, 11, 12 and 14, as far as they are definite, are rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent No. 2,283,844 (Brady hereinafter) in view of United States Patent No. 5,415,521 (Hufnagel et al. hereinafter).

Brady shows a pump comprising a pump section having a flow channel and a rotatable impeller cooperating with the flow channel to pump liquid therethrough; and the impeller including a plurality of blades that are non-radial relative to a center axis of the impeller.

The impeller comprises a hub portion attachment to a rotatable shaft, the plurality of blades extending outwardly from the hub portion and disposed circumferentially thereabout, and a peripheral ring portion extending outwardly from the blades to shroud the blades, wherein each of the blades has a trailing edge.

The blades have an inner diameter and an outer diameter and extend outwardly at an angle at least greater or less than zero therebetween (see Fig. 2).

The blades are back slanted from the inner diameter to the outer diameter (see col. 2, lines 50-53).

The blades are angled from the inner diameter to the outer diameter at an approximately 20° angle (see col. 3, lines 54-55).

Each blade has a trailing edge that does not extend through the center axis of the impeller (see Fig. 2).

The blades are generally "v"-shaped (see Fig. 1 and col. 3, line 17).

The blades 27 inherently have a point of rotation at the hub diameter through which a radial axis extends and each of the blades having a trailing edge being slanted by an angle by a line projected from the trailing edge through the point of rotation. The above-stated inherency is supported by the slanted blades shown in Fig. 2, since the blades are not radial.

Brady does not disclose a fuel pump having the components well-known in the fuel-pump art.

Hufnagel et al. show a typical fuel pump in Figures 1 and 5 comprising a housing 12 having a pump section having an inlet plate 30 and an outlet plate 32 with the impeller 26 disposed axially therebetween. The impeller is further enclosed radially by a spacer ring 29. A motor 20 is disposed adjacent to the outlet plate 32. The arrangement of the fuel pump is configured for the purpose of pumping fuel from a fuel tank to the engine, while allowing the pump to be submerged in the fuel tank.

Since Brady teaches a regenerative pump for pumping liquids and Hufnagel et al. show a regenerative fuel pump used for pumping fuel to an automobile engine, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the housing of the Brady pump to have a typical fuel pump housing,

as shown by Hufnagel et al. for the purpose of pumping fuel from a fuel tank to the engine, while allowing the pump to be submerged in the fuel tank.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent No. 2,283,844 (Brady hereinafter) in view of United States Patent No. 5,415,521 (Hufnagel et al. hereinafter) as applied to claim 8 above, and further in view of United States Patent No. 5,642,981 (Kato et al. hereinafter).

Brady in view of Hufnagel et al. disclose a fuel pump comprising:

- a pump section having a flow channel and a rotatable impeller cooperating with the flow channel to pump fuel therethrough;
- a motor section disposed adjacent the pump section and having a motor to rotate the impeller; an outlet section disposed adjacent the motor section to allow pumped fuel to exit the fuel pump; and
- the impeller including a plurality of blades that are non-radial relative to a center axis thereof.

The blades are angled from the inner diameter to the outer diameter at an approximately 20° angle (see Brady col. 3, lines 54-55).

The blades 27 inherently have a point of rotation at the hub diameter through which a radial axis extends and each of the blades having a trailing edge being slanted by an angle by a line projected from the trailing edge through the point of rotation. The above-stated inherency is supported by the slanted blades shown in Fig. 2, since the blades are not radial.

Neither Brady nor Hufnagel et al. expressly disclose a 5° angle.

Kato et al. disclose a fuel pump impeller having non-radial vanes in Figure 13B wherein the vanes are inclined in the opposite direction from rotation of the impeller by an angle theta (θ), wherein θ is approximately 5° (col. 10, lines 20-27) for the purpose of enhancing a fuel pump's efficiency.

Since Brady in view of Hufnagel et al. teaches a liquid regenerative pump having inclined vanes and suggests that the vanes should be arranged at "a suitable angle" (col. 2, lines 49-50), and Kato et al. show that a 5° angle is suitable for a fuel pump impeller, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the incline angle of the Brady in view of Hufnagel et al. impeller to be 5°, as taught by Kato et al. for the purpose of enhancing the pump's efficiency when used to pump fuel.

Cited Art

A translation of the previously cited Japanese Laid-open Patent Application 57-99,298 has been obtained and is being attached herewith.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard Edgar whose telephone number is (571) 272-4816. The examiner can normally be reached on Monday thru Friday, 8:00 am until 4:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Look can be reached on (571) 272-4820. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Richard Edgar
Examiner
Art Unit 3745

RE



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2/5/05